

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or relating to Collapsible Containers.

We, FLEXIPAC LIMITED, a British Company, and JOSEPH HAMMERSON, a British Subject, both of 6, Clerkenwell Green, London, E.C.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention is for improvements in or relating to collapsible containers and has particular reference to collapsible containers of the type, hereinafter referred to as the type described, consisting of a collapsible
15 tubular body portion of flexible synthetic thermoplastic material having at one end a head portion of similar material provided with an extrusion orifice for dispensing the contents, the other end being permanently
20 closed by welding or by other sealing means. The extrusion orifice in the head portion may be temporarily closed by a screw cap or may be integrally closed by a plastic plug which may be pierced or cut off to
25 allow the discharge of the contents. The container may be filled through the end remote from the head portion before that end is sealed. One such container and a process and apparatus for making same is disclosed in British Patent Specification No.
30 719,429.

When containers of the type described are employed for feeding liquids by means of a suction pump to apparatus, e.g. when employed
35 for supplying ink to duplicating machines, difficulties are apt to arise since the flow of liquid may be irregular and the container may not be completely emptied of liquid.

40 We have now found that the above-mentioned difficulties may be overcome by providing the container with an internal perforated tube through which the liquid is drawn to the extrusion orifice.

45 According to the present invention there

is provided a collapsible container of the type described characterised in that the extrusion orifice is provided, within the container, with a perforated tube which tube
50 extends along a substantial part of the length of the container.

The tube may be rigid or flexible and may be made of synthetic thermoplastic or thermosetting material or of metal. When
55 the tube is made of thermoplastic material it may be secured to the inside of the extrusion orifice by welding. Alternatively, the tube may be secured to the extrusion orifice by means of an adhesive.

The tube may be of any cross section, e.g. rectangular, square, round or oval and the perforations in the tube are preferably
60 round or elliptical holes which may be regularly or irregularly spaced along the length of the tube.

In a preferred form of the present invention the tube is of oval cross section and the perforations consist of pairs of diametrically opposed holes, the holes increasing
65 regularly in size from the extrusion orifice to the end of the tube remote from the extrusion orifice. This assists in removing liquid substantially completely from the closed end of the container. The end of
70 the tube remote from the extrusion orifice is preferably open and provided with one or more longitudinally extending slots. These slots permit the entry of liquid into the tube should the free end of the tube become
75 obstructed, e.g. by suction of the walls of the container against it.

Following is a description by way of example and with reference to the accompanying drawings of one form of collapsible container embodying the present invention.
85 In the drawings,

Figure 1 is a part sectional view of the collapsible container with the perforated tube in position.

Figure 2 is a section of the container and
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tube of Figure 1 taken on the line 2-2 in the direction of the arrows.

Referring to the drawings tube 11 for containing and dispensing ink to a duplicating machine, which tube has a diameter of approximately 2" and a length of about 8½" was made of polyvinyl chloride in accordance with the process disclosed in British Patent Specification No. 719,429.

10 Into the interior of the orifice 12 of this dispensing tube was secured an open ended tube 13 made of polyvinyl chloride. This tube was of elliptical cross section about 7¼" long, having about ¾" at one end 14 of circular cross section, which end fits into the interior of the extrusion orifice and was welded in position. The interior tube 13 was provided with a series of perforations which consisted of pairs of diametrically 20 opposed holes 15 at the ends of the major axis of the ellipse and the holes increasing slightly in size towards the free end of the tube from approximately ¼" to ⅝" diameter. The free end 16 of the tube was provided with four longitudinally extending slots 17 approximately ⅓" in length.

What we claim is:—

1. A collapsible container of the type described characterised in that the extrusion orifice is provided, within the container, with a perforated tube which tube extends along a substantial part of the length of the container.

2. A collapsible container as claimed in 35 claim 1 wherein the tube is made of synthetic thermoplastic or thermosetting material or a metal.

3. A collapsible container as claimed in claim 2 wherein when the tube is made of thermoplastic material it is secured to the 40 inside of the extrusion orifice by welding.

4. A collapsible container as claimed in claim 2 wherein the tube is secured to the inside of the extrusion orifice by means of an adhesive. 45

5. A collapsible container as claimed in any one of the preceding claims wherein the tube is of rectangular, square, round or oval cross section.

6. A collapsible container as claimed in any one of the preceding claims wherein the perforations in the tube are round or elliptical holes regularly or irregularly spaced along the length of the tube.

7. A collapsible container as claimed in claim 6 wherein the perforations consist of pairs of diametrically opposed holes, the holes increasing regularly in size from the extrusion orifice to the end of the tube remote from the extrusion orifice. 55

8. A collapsible container as claimed in any one of the preceding claims wherein the end of the tube remote from the extrusion orifice is open and provided with one or more longitudinally extending slots. 60

9. A collapsible container substantially as described in the specific example hereinbefore set forth with reference to the accompanying drawings. 65

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PROVISIONAL SPECIFICATION

Improvements in or relating to Collapsible Containers.

70 We, FLEXIPAC LIMITED, a British Company, and JOSEPH HAMMERSON, a British Subject, both of 6, Clerkenwell Green, London, E.C.1, do hereby declare this invention to be described in the following statement:—

This invention is for improvements in or relating to collapsible containers and has particular reference to collapsible containers of the type, hereinafter referred to as the 80 type described, consisting of a collapsible tubular body portion of flexible synthetic thermoplastic material having at one end a head portion of similar material provided with an extrusion orifice for dispensing the contents, the other end being permanently closed by welding or by other sealing means. The extrusion orifice in the head portion may be temporarily closed by a screw cap or may be integrally closed by a plastic plug 90 which may be pierced or cut off to allow the discharge of the contents. The container

may be filled through the end remote from the head portion before that end is sealed.

When containers of the type described are employed for feeding liquids by means of a 95 suction pump to apparatus, e.g. when employed for supplying ink to duplicating machines, difficulties are apt to arise since the flow of liquid may be irregular and the container may not be completely emptied 100 of liquid.

We have now found that the above-mentioned difficulties may be overcome by providing the container with an internal perforated tube through which the liquid is 105 drawn to the extrusion orifice.

According to the present invention there is provided a collapsible container of the type described characterised in that the extrusion orifice is provided, within the con- 110 tainer, with a perforated tube which tube extends along a substantial part of the length of the container.

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The tube may be rigid or flexible and may be made of synthetic thermoplastic or thermosetting material or of metal. When the tube is of thermoplastic material it may be secured to the inside of the extrusion orifice by welding. Alternatively, the tube may be secured to the extrusion orifice by means of an adhesive.

The tube may be of any cross section, e.g. rectangular, square, round or oval and the perforations in the tube are preferably round or elliptical holes which may be regularly or irregularly spaced along the length of the tube.

In the preferred form of the present invention the tube is of oval cross section and the perforations consist of pairs of diametrically opposed holes, the holes increasing regularly in size from the extrusion orifice to the end of the tube remote from the extrusion orifice. This assists in removing liquid substantially completely from the closed end of the container. The end of the tube remote from the extrusion orifice is preferably open and provided with one or more longitudinally extending slots. These slots permit the entry of liquid into the tube should the free end of the tube become obstructed, e.g. by suction of the walls of the container against it.

The container may conveniently be made

by the process according to our British Patent Specification No. 719,429.

Following is a description by way of example of one form of collapsible container embodying the present invention.

A tube for containing and dispensing ink to a duplicating machine, which tube has a diameter of approximately 2" and a length of about 8½" was made of polyvinyl chloride in accordance with the process disclosed in Specification No. 719,429.

Into the interior of the orifice of this dispensing tube was secured an open ended tube made of polyvinyl chloride. This tube was of elliptical cross section about 7½" long, having about ¼" at one end of circular cross section, which end fits into the interior of the extrusion orifice and was welded in position. The interior tube was provided with a series of perforations which consisted of pairs of diametrically opposed holes at the ends of the major axis of the ellipse and the holes increasing slightly in size towards the free end of the tube from approximately ¼" to ⅜". The free end of the tube was provided with four longitudinally extending slots approximately ½" in length.

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